

RAY JEFFERSON® LIMITED WARRANTY

This unit is fully covered by our limited warranty. It will give you dependable service and long life under normal conditions encountered in marine use. The limited warranty is as follows: This warranty applies to the original purchaser only.

Components: Ray Jefferson warrants every component of the equipment, with the exception of transistors, tubes and glass bulbs to be free from any defects caused by poor workmanship or faulty materials. Under the warranty, Ray Jefferson is liable only to the repair, or, at Ray Jefferson option, the replacement, without charge, of any component found to be defective under normal use within 2 years of the date of Ray Jefferson shipment, if the following conditions are met:

- (1) Ray Jefferson must be promptly notified, in writing, upon discovery of any such defects;
- (2) The defective components must be returned to Ray Jefferson.
- (3) Ray Jefferson examination must disclose to its satisfaction that defects have not been caused by abuse.
- (4) Customer must pay shipping costs both ways.
- (5) Water damage will void warranty.

Warranty is void unless registration card is returned to the factory within 10 days after purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons or service stations in any way so as, in our judgment to affect their stability or reliability, or which have been subjected to misuse, negligence, or accident, or which have had the serial number altered, effaced, or removed. Neither does this warranty apply to any of our products which have been connected, installed, or adjusted otherwise than in accordance with the instructions furnished by us. Accessories not manufactured by us are not covered by the warranty. No equipment manufactured by Ray Jefferson is warranted in any respect if it has been repaired or altered other than at authorized service agencies.

This warranty is in lieu of all other warranties expressed or implied and no representatives or persons authorized to assume for us any other liability in connection with the sale of our products.

CONSEQUENTIAL DAMAGE:

Ray Jefferson shall not be held liable for any damage of a special or consequential nature with respect to merchandise sold or delivered, or service rendered.

Ray Jefferson reserves the right to perform modifications or improvements on its products without incurring obligation to install the changes on previously sold equipment.

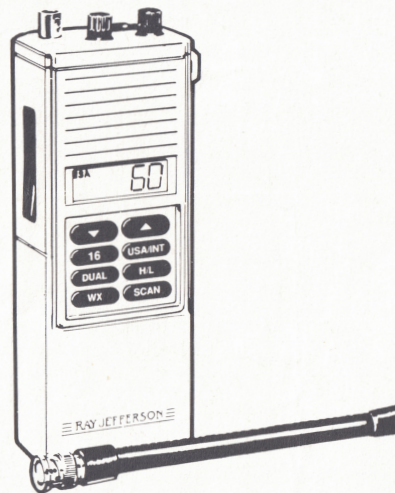
This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RAY JEFFERSON
DIVISION OF JETRONIC INDUSTRIES, INC.

4200 Mitchell St.

Philadelphia, PA 19128

MARINE RADIO TELEPHONE MODEL 689 VHF/FM



INSTRUCTION HANDBOOK
RAY JEFFERSON
FIRST IN MARINE ELECTRONICS

Division of Jetronic Industries, Inc.
4200 Mitchell Street • Phila., PA 19128

SIDE AND BACK PANELS—continued

⑩ **Push-to-Talk Switch**

Press this switch to transmit. When released the unit is in the receive mode. If switched to transmit mode for 5 continuous minutes, the unit will shut off automatically.

⑪ **External Power Connection**

For use with ship's 12 VDC battery system. 3 amp fused power cord not supplied.

⑫ **Battery Pack**

Removable battery pack. Just slide the lower portion of the 689 to the left to replace the rechargeable battery pack.

⑬ **Lanyard Loop**

Provision for attaching nylon carrying lanyard supplied.

⑭ **Belt Clip**

A non-corrosive belt clip is attached to the back of the unit for temporarily fastening the unit to your belt or the top of your pants.

⑮ **Battery Charger Connection**

For use with supplied 110 Volt AC battery charger or optional DC power cord (CLA-1).



CHARGING THE BATTERY

Connect the 110 VDC wall charger first to the unit then to a standard household 110 volt receptacle. The battery should be charged for at least 6 hours initially. However, the unit needs a charge of 12 hours before it can be put to full use. It is advisable to re-charge the unit immediately after use. A good habit to get into is to charge the unit overnight after a day's use.

You cannot overcharge the batteries. There is a built in circuit which reduces or eliminates the charge as batteries reach full capacity.

OPERATING YOUR MODEL 689

TO RECEIVE

1. Rotate the VOLUME CONTROL clockwise a few degrees until the switch clicks into the "ON" position. Advance the VOLUME CONTROL to the desired audio level.

2. Select the channel desired with the keypad. If channel 16 is to be used, select with CH. 16 key.

3. Turn SQUELCH CONTROL clockwise until the background noise on an unoccupied channel is reduced to full quieting.

NOTE:

The set automatically turns on to the **'High'** power and channel 16.

TO TRANSMIT

The operation of the transmitter and receiver is controlled by the "Push-to-Talk" switch located on the side of the 689. When depressed, the transmitter becomes operative and the receiver becomes inoperative. When released, the receiver is automatically restored to operation. The 689 will stay at the **'High'** power setting when switched to another channel unless the H/L button is pressed switching the unit to **'Low'** power.

1. Place the **"HI-LO"** switch in either the "HI" or "LOW" position depending on the range of desired communications. In the **"HI"** position, the set operates at full 5 watt power for maximum output. In the **"LOW"** position, the set operates at one watt of power. The 689 will only transmit at "LOW"-1 watt power on channel 17. The unit switches to this power automatically when this channel is selected. The 689 will stay at the low power setting when switched to another channel unless the H/L button is pressed switching the unit to high power.

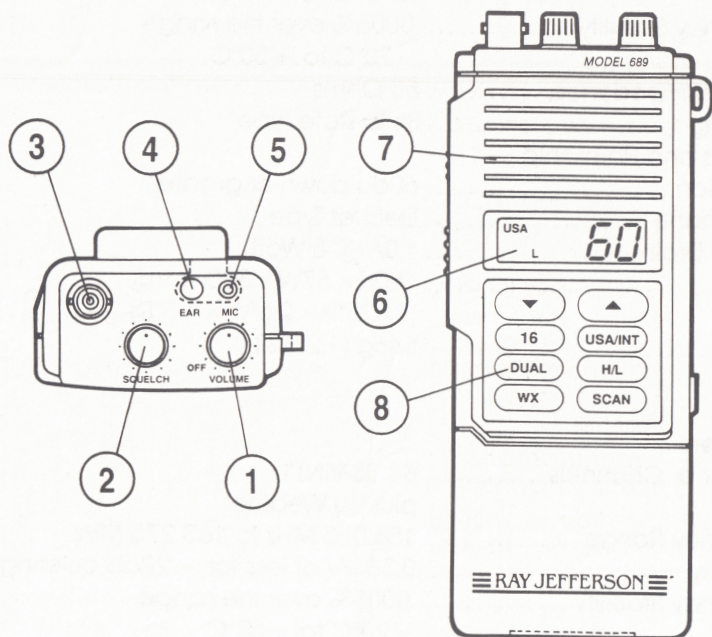
2. The LCD **TX** indicator will be displayed whenever the transmitter is activated.

NOTE:

Do not attempt to transmit unless your antenna is connected as this may result in damage to your radio.

GETTING TO KNOW YOUR MODEL 689

The controls on model 689 are conveniently located. On the top are the On/Off and Squelch controls while the front panel has the large LCD display, speaker and keypad. The Push-To-Talk Switch is located on the side of the unit. This chapter will locate all of the controls and briefly describe their functions.



TOP PANEL—CONTROL FUNCTIONS

- ① **On-Off/Volume Control**
Applies power to the Model 689 and adjusts desired level of sound.
- ② **Squelch Control**
When properly set, silences background noise in absence of a received signal.
- ③ **Antenna Connector**
Rubber helical antenna (BNC) connector is supplied with the unit.
- ④ **External Speaker Jack**
Connect external speaker into jack. Doing so disconnects internal/front panel speaker.
- ⑤ **External Microphone Jack**
Connect external microphone into this jack. Use of this jack renders the push-to-talk switch on the side of the unit inoperable.

Key	Function	LCD Display	Description
WX	Weather	WX	To select a weather channel press WX and ▲ or ▼ until you locate the weather channel (0–9) that is operating in your area. If you know, for example, that the national weather service transmits on weather channel 5, press WX then ▲ until you reach 5. You have now programmed the unit to receive weather channel 5. The next time you wish to listen to the weather, simply press WX . The 689 will automatically switch to weather channel 5. This information will be retained by the 689 until it is turned off. To exit this mode press WX again.
USA/INT	USA or Int'l Channel	USA or INT	Pressing this key switches from USA to International channels and then back.
H/L	High Power Low Power	H or L	Pressing this key changes the TX power: level high and low alternately. Low level (1 watt) can not be changed to high level (5 watt) on channel 17. Note: The set turns on at high (5w) power.
SCAN			Press SCAN . The 689 will step through the entire list of either USA or International channels every 11 seconds. It will stop at an active channel for 5 seconds then proceed. And will scan only weather channels when in the weather mode. Exit SCAN by pressing SCAN again, or the press-to-talk switch on the microphone.

INTRODUCTION

Congratulations ... on the purchase of your new Ray Jefferson Model 689.

You now own all the handheld radio you'll ever need for US & International Marine communications. The Model 689 is a compact, solid state, VHF/FM marine radio telephone, which provides U.S. and International VHF/FM channels designated for marine use. To assure years of trouble free service, the instructions in this manual should be followed precisely. The Model 689 is primarily intended for ship-board use. The Model 689 has 54 transmit channels and 81 receive channels plus 10 weather channels. After a 12 hour charge your Model 689 will be ready for use. The set is pretuned and designed with special phaselock-loop switching circuitry for operation over the entire frequency range. Specific channel frequencies are noted in this book. This instruction handbook is important, and should not be lost.

This manual has been prepared with the operator and technician in mind. It should be carefully read prior to use and before performing any adjustments.

Ray Jefferson's Model 689 VHF/FM is FCC type accepted and Canadian DOC approved.

NOTE:

Transmitter adjustments are only permitted by an FCC licensed technician holding a general class radio-telephone license.

NOTICE

**IT IS RECOMMENDED THAT YOUR BATTERY PACK
BE CHARGED FOR AT LEAST 8 HOURS BEFORE USING.
RAY JEFFERSON**

CHANNEL DESIGN	FREQUENCY (MHz)			TYPE TRAFFIC	FUNCTION	
	TX	RX (USA)	RX (INT'L)		SHIP TO SHIP	SHIP TO SHORE
65	156.275	156.275	160.875	Port Op	No	Yes
66	156.325	156.325	160.925	Port Op	Yes	Yes
67	156.375	156.375	156.375	Com'l	Yes	No
68	156.425	156.425	156.425	Non Com'l	Yes	Yes
69	156.475	156.475	156.475	Non Com'l	Yes	Yes
70	156.525	156.525	156.525	Non Com'l	Yes	No
71	156.575	156.575	156.575	Non Com'l	Yes	Yes
72	156.625	156.625	156.625	Non Com'l	Yes	No
73	156.675	156.675	156.675	Port Op	Yes	Yes
74	156.725	156.725	156.725	Port Op	Yes	Yes
75	—	156.775	156.775			
76	—	156.825	156.825			
77	156.875	156.875	156.875	Port Op	Yes	No
78	156.925	156.925	161.525	Non Com'l	Yes	Yes
79	156.975	156.975	161.575	Com'l	Yes	Yes
80	157.025	157.025	161.625	Com'l	Yes	Yes
81 (CG)	157.075	157.075	161.675	Coast Guard	Yes	Yes
82 (CG)	157.125	157.125	161.725	Coast Guard	Yes	Yes
83 (CG)	157.175	157.175	161.775	Coast Guard	Yes	Yes
84	157.225	161.825	161.825	Public C	No	Yes
85	157.275	161.875	161.875	Public C	No	Yes
86	157.325	161.925	161.925	Public C	No	Yes
87	157.375	161.975	161.975	Public C	No	Yes
88	157.425	157.425	162.025	Com'l	Yes	No
WX0	—	163.275	—	NOAA Weth	Rec Only	Rec Only
WX1	—	162.550	—	NOAA Weth	Rec Only	Rec Only
WX2	—	162.400	—	NOAA Weth	Rec Only	Rec Only
WX3	—	162.475	—	NOAA Weth	Rec Only	Rec Only
WX4	—	162.425	—	NOAA Weth	Rec Only	Rec Only
WX5	—	162.450	—	NOAA Weth	Rec Only	Rec Only
WX6	—	162.500	—	NOAA Weth	Rec Only	Rec Only
WX7	—	162.525	—	NOAA Weth	Rec Only	Rec Only
WX8	—	161.650	—	Canadian Weth	Rec Only	Rec Only
WX9	—	161.775	—	Canadian Weth	Rec Only	Rec Only

CAUTION:

Operation of channels not designated for uses by your classification of craft or on international channels when within United States territorial waters is a violation of Federal Communications Commission rules and regulations and may result in severe penalties.

LOG

[illegible]

LOG

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MARINE CHANNELS AND THEIR USAGE

CAUTION:

While it is possible to select channel such as channels WX0 ~ WX9 15,75 and 76 the transmitter is disabled since no communication is authorized on these channels.

CHANNEL DESIGN	FREQUENCY (MHz)			TYPE TRAFFIC	FUNCTION	
	TX	RX (USA)	RX (INT'L)		SHIP TO SHIP	SHIP TO SHORE
01	156.050	156.050	160.650	Port Op	Yes	Yes
02	156.100	156.100	160.700	Port Op	Yes	Yes
03	156.150	156.150	160.750	Port Op	Yes	Yes
04	156.200	156.200	160.800	Port Op	Yes	Yes
05	156.250	156.250	160.850	Port Op	Yes	Yes
06	156.300	156.300	156.300	Safety	Yes	No
07	156.350	156.350	160.950	Com'I	Yes	Yes
08	156.400	156.400	156.400	Com'I	Yes	No
09	156.450	156.450	156.450	Com'I & Non	Yes	Yes
10	156.500	156.500	156.500	Com'I	Yes	Yes
11	156.550	156.550	156.550	Com'I	Yes	Yes
12	156.600	156.600	156.600	Port Op	Yes	Yes
13	156.650	156.650	156.650	Nav.	Yes	Yes
14	156.700	156.700	156.700	Port Op	Yes	Yes
15	—	156.750	156.750	Distress, Safety C	—	—
16	156.800	156.800	156.800	Distress, Safety C	Yes	Yes
17*	156.850	156.850	156.850	State Con	Yes	Yes
18	156.900	156.900	161.500	Com'I	Yes	Yes
19	156.950	156.950	161.550	Com'I	Yes	Yes
20	157.000	157.000	161.600	Port Op	Yes	Yes
21 (CG)	157.050	157.050	161.650	Coast Guard	Yes	Yes
22 (CG)	157.100	157.100	161.700	Coast Guard	Yes	Yes
23 (CG)	157.150	157.150	161.750	Coast Guard	Yes	Yes
24	157.200	161.800	161.800	Public C	No	Yes
25	157.250	161.850	161.850	Public C	No	Yes
26	157.300	161.900	161.900	Public C	No	Yes
27	157.350	161.950	161.950	Public C	No	Yes
28	157.400	162.000	162.000	Public C	No	Yes
60†	156.025	156.025	160.625			
61†	156.075	156.075	160.675			
62†	156.125	156.125	160.725			
63	156.175	156.175	160.775			
64†	156.225	156.225	160.825			

*1w only

[†]Assigned by Canadian Government, proper authorization must be ensured prior to use.

CAUTION:

Operation of channels not designated for uses by your classification of craft or on international channels when within United States territorial waters is a violation of Federal Communications Commission rules and regulations and may result in severe penalties.

MODEL 689 SPECIFICATIONS

Transmitter:

Number of Channels	54 USA, INT'L
Frequency Range	156.025 MHz to 157.425 MHz
Channel Spacing	25 KHz
Modulation	16F3 for 100%
RF Power (Switchable)	High Power: 5 Watts Low Power: 1 Watt
Frequency Stability	.0005% over the range -20°C to +50°C
Antenna Impedance	50 Ohms
Switching	Solid state type
Spurious and Harmonic	
Emission	60db down or greater
Microphone	Electret Type
Current Drain	1.0A @ 5 Watt
Size	180H x 67W x 38D (mm) (7.625"H x 2.6"W x 1.5"D)
Weight	546g (1.2 lbs.)

Receiver:

Number of Channels	81 USA/INT'L plus 10 Weather
Frequency Range	156.025 MHz to 163.275 MHz
Sensitivity	0.35 μ V or less for -20db quieting
Frequency Stability	.0005% over the range -20°C to +50°C
Spurious and Image Rejection	60db or greater
Squelch Sensitivity	Threshold: 0.25 μ V Full Squelch: 0.3 μ V to 0.8 μ V
IF Frequencies	1st IF: 21.6 MHz 2nd IF: 455 KHz
Audio Output	3 Watts @ 10% distortion (8 Ohm load)
Receiver Current	0.5 amp maximum

USING THE KEYPAD

When the Model 689 is first turned on it will automatically switch to the USA channels, **high transmit power** and channel 16. Any changes you wish to make after that can be done by using the keys on the front of the unit. The unit emits a beep when a keystroke is properly made.

Key	Function	LCD Display	Description
16	Instant Priority	16	The 16 key has priority over any other mode. Pressing 16 automatically switch the unit to CH 16.
▲ OR ▼	Channel Up or Down	CHANNEL NUMBER	By pressing and holding ▲ , the 689 will switch to higher channels. ▼ switches the 689 to lower channels. Pressing and releasing ▲ or ▼ will move one channel up or down respectively.
DUAL	Dual Scan	DUAL	Select a channel other than Ch 9 or 16 that you would like to monitor. Next open the squelch until you hear background noise. Press DUAL then adjust the squelch until the background noise is eliminated when the channel is unoccupied. Example: Press ▲ and hold until you reach 68. Open the squelch until you hear background noise. Now, press DUAL and adjust the squelch until the background noise is eliminated. The unit, now in the dual mode, will maintain a watch on Channels 9 and 16 every three seconds while it monitors Channel 68 (or any other channel you choose). When the unit senses a transmission on Ch 9 or 16 it switches to that channel, stays with the transmission until it is completed, then returns to the dual mode—monitoring Channel 9, 16 and 68. To exit this mode press DUAL .

FRONT PANEL—CONTROLS AND DISPLAYS

⑥ LCD Displays

Channel number currently being monitored is displayed in this window. In addition, the following LCD may be displayed:

TX	Transmitting	INT	International Frequencies
WX	Weather mode	H	High Transmit Power
DUAL	Dual (time share) mode	L	Low Transmit Power
USA	United States Frequencies	SCAN	Steps thru all channels

⑦ Speaker/Microphone

Both the speaker and the microphone are located behind the front panel grill.

⑧ Program Keypad

The program keypad contains 8 touch-entry keys to perform all the channel and mode selections. For How to Use information see page 10.

▲ ▼ UP (▲) and DOWN (▼) keys to select channels.

USA/INT The USA and international frequency mode will change from one to the other each time the button is pushed.

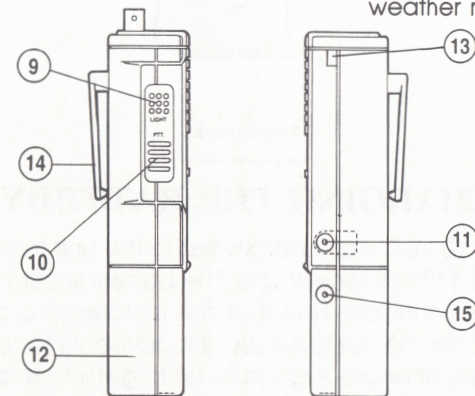
16 Press to automatically return set to channel 16.

DUAL Allows you to monitor channels 9, 16 and any other selected channel.

WX Receives any of the 10 Weather Channels. Press **WX** **▲** or **▼** keys to change from one weather channel to another.

H/L Selects transmitter power (High-5w, Low-1w).

SCAN With set squelched receiver will scroll through all transmit channels and pause for 4 seconds on any active channel. Will scan only weather channels when in the weather mode.



SIDE AND BACK PANELS

⑨ Light Switch

Press and hold this switch to use LCD display light. For night use only.

PUBLIC NOTICE

FEDERAL COMMUNICATIONS COMMISSION
1919 M STREET N.W.
WASHINGTON, D.C. 20554

News media information Recorded listing of releases and texts
202/254-7874 202/632-0002

Released: May 17, 1990

FCC FORM 506—APPLICATION FOR SHIP RADIO STATION LICENSE

Effective May 21, 1990, only the Ship Radio Station License Application Form 506 dated October 1987 (and later editions) will be accepted for processing.

Earlier editions of the application form filed after May 21, 1990, will delay the issuance of the license, since applications will be returned without action, along with a request to refile on a current form.

For further information, contact the Consumer Assistance Branch, Private Radio Bureau, Gettysburg, PA 17326, telephone number 717-337-1212.

Effective May 21, 1990, each Ship Radio Station Application (FCC form 506) must include a fee of \$35 payable to the FCC by a single check or money order. DO NOT SEND CASH. Send application and fee to:

**Federal Communications Commission
Marine Ship Service
P.O. Box 358275
Pittsburgh, PA 15251-5275**

Applicants filing as Governmental Entities are exempt from the fee requirement and should send their application to:

**Federal Communications Commission
Gettysburg, PA 17326**

FLEET APPLICANTS ONLY: Applicants for new and renewed Marine Fleet licenses must compute their application fee by multiplying the number of stations in the fleet times \$35. For Fleet license modification applications, compute the fee by multiplying the number of stations to be modified times \$35. When adding stations to a fleet, compute the fee by multiplying the number of stations to be added times \$35.

Questions about fees may be directed to the Gettysburg Consumer Assistance Branch at 717-337-1212.

FCC 1070-S
July 1990

LICENSING INFORMATION

YOUR SHIP'S RADIO—IT'S YOUR LIFELINE! When you buy a marine radio or if a marine radio is already aboard a vessel that you purchase, you must obtain a license for it. This is called a **"SHIP RADIO STATION LICENSE."**

The current application is FCC Form 506. The fee is \$35. It takes approximately 8–10 weeks to process the application. This license, when issued will have your station's call sign on it. The bottom portion of Form 506 is your **TEMPORARY PERMIT** and includes instructions for assigning the vessel's temporary call sign. This permit will enable you to operate your radio for 90 days after you send in your application. The license is valid for 5 years. A renewal application is automatically sent to you 4 to 6 weeks before expiration. IF YOU MOVE, BE SURE TO NOTIFY THE GETTYSBURG OFFICE IN WRITING AND KEEP A COPY OF THAT LETTER.

The Restricted Radiotelephone Operator Permit, Form 753, is no longer necessary for domestic use or to sail in international waters, unless you dock at a foreign port. If you plan to dock in a foreign port or are leaving a foreign port to dock in a U.S. port, you need the Restricted Permit. The fee is \$35. Mail the application FCC Form 753 to the Pittsburgh address.

Mail Form 506 to:	Mail Form 753 to:	Mail address change to:
FCC	FCC	FCC
Marine Ship Service	Marine Ship Service	P.O. Box 1040
P.O. Box 358275	P.O. Box 358295	Gettysburg, PA 17326
Pittsburgh, PA 15251-5275	Pittsburgh, PA 15251-5295	

If you need to call Gettysburg about license information, call 717-337-1212. See Public Notice Bulletin concerning fees.

Pleasure vessel owners will also need a copy of FCC Bulletin #2—HOW TO USE YOUR MARINE RADIO, which is available at your nearest FCC office at NO COST.

If you sell your boat, you must submit your old license for cancellation. If you buy a new boat, you must get a new station license as these licenses are not transferable. If any additional information is required, please contact our office at the Gettysburg address or telephone number.

A final word of caution—THE MARINE RADIO SERVICE IS A SAFETY SERVICE—there are no channels (frequencies) for chit-chat.